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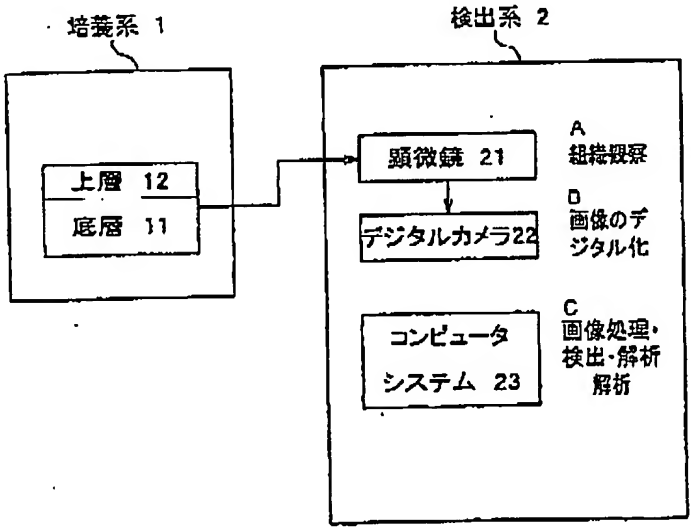
[続葉有]

(54) Title: CULTURE SYSTEM, DETECTION AND ANALYSIS SYSTEM AND DETECTION METHOD FOR CANCER CELL COLONIES

(54) 発明の名称: 癌化細胞コロニーの培養系、検出解析システムおよび検出方法




1... CULTURE SYSTEM
12...TOP LAYER
11...BOTTOM LAYER
2... DETECTION SYSTEM
21...MICROSCOPE
C... IMAGE PROCESSING, DETECTION AND ANALYSIS, ANALYSIS
A... TISSUE OBSERVATION
22...DIGITAL CAMERA
B... IMAGE DIGITALIZATION
23...COMPUTER SYSTEM

(57) Abstract: It is intended to provide a detection and analysis system for cancer cell colonies, whereby an environmental cell carcinogen causing cell carcinogenesis or a chemical or a food inhibiting cell carcinogenesis can be quickly and accurately detected, and a method therefor. Namely, a detection and analysis system for cancer cell colonies using a culture system (1) prepared by the agar overlaying method which comprises a bottom layer (1) being composed of a culture medium, soft agar and a carcinogenesis inducer and/or an anticancer agent and having a definite size and a top layer (12) being composed of a culture medium, soft agar and cells, and further provided with an optical microscope (21), an electronic data conversion unit (22) such as a digital camera and a computer system (23) for processing the data converted by the electronic data conversion unit (22). This computer system (23) has an image analysis software stored therein whereby the electronic data are grayed, calibrated and binarized by subtraction and single threshold and thus the presence or absence of colonies, the number of colonies, the size distribution of colonies, etc. are analyzed.

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添付公開書類:
— 国際調査報告書



(57) 要約: 細胞癌化を引き起こす環境中の細胞発癌剤、細胞癌化を抑制する薬品や食品を迅速かつ正確に検出することが可能な癌化細胞コロニーの検出解析システムおよびその方法を提供するために、培地と、軟寒天と、発癌誘導物質および／または抗癌剤とから構成される所定の寸法を有する底層１１と、培地と、軟寒天と、細胞とから構成される所定の寸法を有する上層１２とから構成された寒天重層培養法に基づいて調製された培養系１を用いた、光学顕微鏡２１、デジタルカメラ等の電子データ変換手段２２および電子データ変換手段２２により変換されたデータを処理するためのコンピュータシステム２３から構成される癌化細胞コロニーの検出解析システムを本発明は提供する。このコンピュータシステム２３には、電子データをグレー化し、キャリブレーション、減算および単一しきい値による２値化を行い、コロニーの有無、コロニーの数、コロニーの寸法分布等を解析する画像解析ソフトウェアが格納されている。

# INTERNATIONAL SEARCH REPORT

International Application No.
PCT/JP03/10865

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl[7] C12Q1/04, C12M1/34, G01N33/15, 33/50

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
Int.Cl[7] C12Q1/04, C12M1/34, G01N33/15, 33/50

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
CA/BIOSIS/WPIDS/MEDLINE(STN)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| E,X | JP 2003-265195 A (Ko Tokuko), 24 September, 2003 (24.09.03), Claims; examples (Family: none) | 1-10 |
| Y | Anne W., Hamburger et al., "Effect of Epidermal Growth Factor on Proliferation of Human Tumor Cells in Soft Agar", Journal of the National Cancer Institute, 1981, Vol.67, pages 825 to 830, Full text | 1-10 |
| Y | Zigang Dong et al., "Differential transformation efficiency but not AP-1 induction under anchorage-dependent and-independent conditions", Carcino genesis, 1994, Vol.15(5), pages 1001 to 1004, Full text | 1-10 |

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier document but published on or after the international filing date
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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

| Date of the actual completion of the international search | Date of mailing of the international search report |
|---|---|
| 26 November, 2003 (26.11.03) | 09 December, 2003 (09.12.03) |
| Name and mailing address of the ISA/ Japanese Patent Office | Authorized officer |
| Facsimile No. | Telephone No. |

Form PCT/ISA/210 (second sheet) (July 1998)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP03/10865

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| Y | Chuanshu Huang et al., "Shortage of mitogen-activated protein kinase is responsible for resistance to AP-1 transactivation and trans formation in mouse JB6 cells", Proceeding of the National Academy of Sciences, USA, 1998, Vol.95(1), pages 156 to 161, Full text | 1-10 |
| Y | EP 447034 A1 (NITTA GELATIN INC.), 18 September, 1991 (18.09.91), Claims; examples & JP 3-285696 A & US 5356793 A & DE 69131722 A | 1-10 |